

COVID-19: Economic Impact Analysis on Monroe County Service Region

September 2021

EXECUTIVE SUMMARY REPORT



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Acknowledgements

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INTRODUCTION

Monroe county is one of nine counties located along the Mississippi River in Western Wisconsin that are members of the Mississippi River Regional Planning Commission (MRRPC)¹. MRRPC includes Buffalo, Crawford, Jackson, La Crosse, Monroe, Pepin, Pierce, Trempealeau, and Vernon counties. In 2020, the Monroe county population was 46,274², with a total regional employment of 22,854. The average earnings per job in 2020 was \$58,448, which is \$15,705 below the national average earnings per job.³

The Monroe county economy creates value in many ways. The employed labor force in Monroe generates new dollars and creates opportunities in the region.

MRRPC tracks Monroe's industries and studies the changes in taxes, earnings, and job market. An understanding of the regional economy and the economic impact effects of COVID-19 is vital to Monroe's efforts seeking to adapt to the post-pandemic economy.

Labor Force in Monroe
creates new opportunities
in their region.

The purpose of this report is to outline the region's economy and provide an economic impact analysis of COVID-19. This report will focus on the effects of job losses during 2020 caused by the pandemic and the impact they have had on the region's diverse industries. The following figures and tables display key findings of the analysis.

¹ <https://mrrpc.com/about/>

² <https://www.census.gov/library/stories/state-by-state.html>

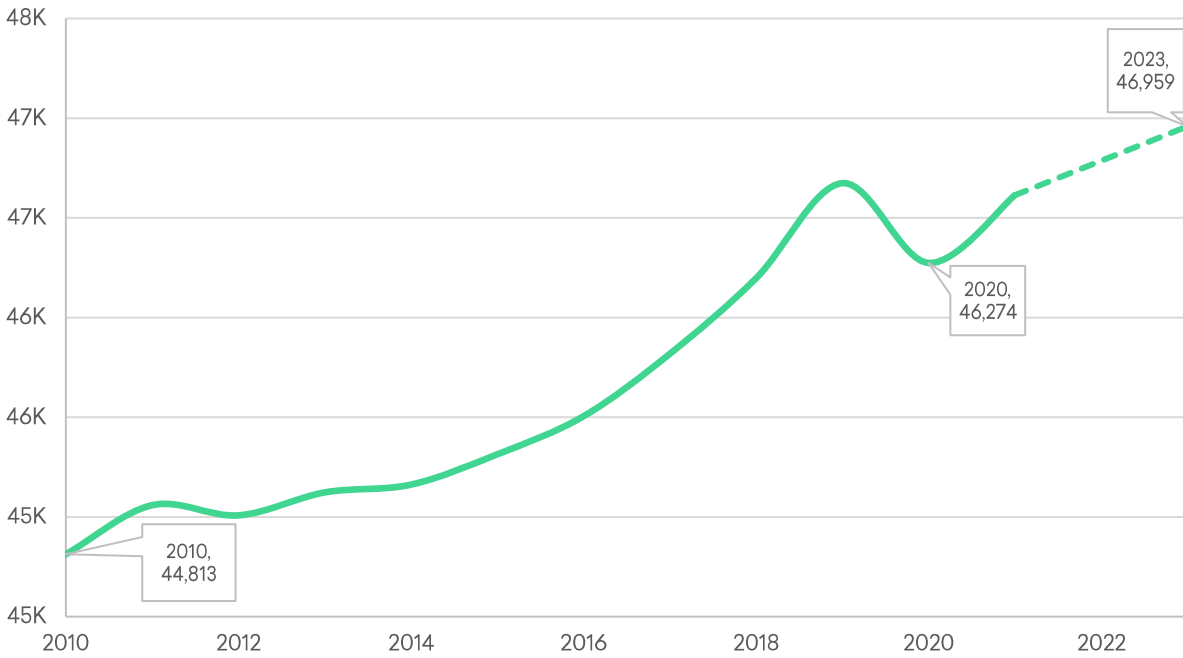
³ Emsi Burning Glass proprietary data, collected on August 23, 2021.



ECONOMIC OVERVIEW

In 2010, 44,813 people resided in Monroe. The county's population is projected to increase to 46,959 people by 2023 (Figure 01).

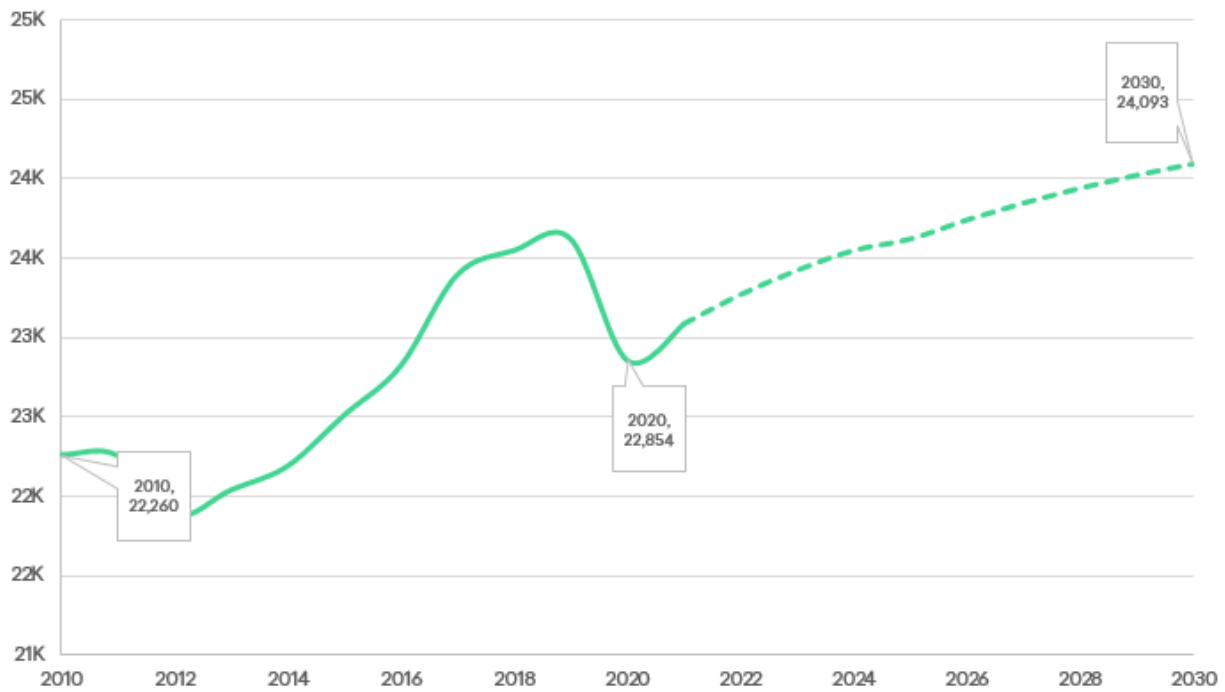
Figure 01: Historical and Projected Population in Monroe, 2010 to 2023



Source: Emsi Burning Glass demographics data, U.S. Census Bureau.

As shown in Figure 02, Monroe supported 22,260 jobs in 2010 and by 2020, the region had just 22,854 jobs. In 2020 alone, the region lost 767 jobs. Due to data limitations, projections may not capture the total impact of COVID-19 on future labor markets.

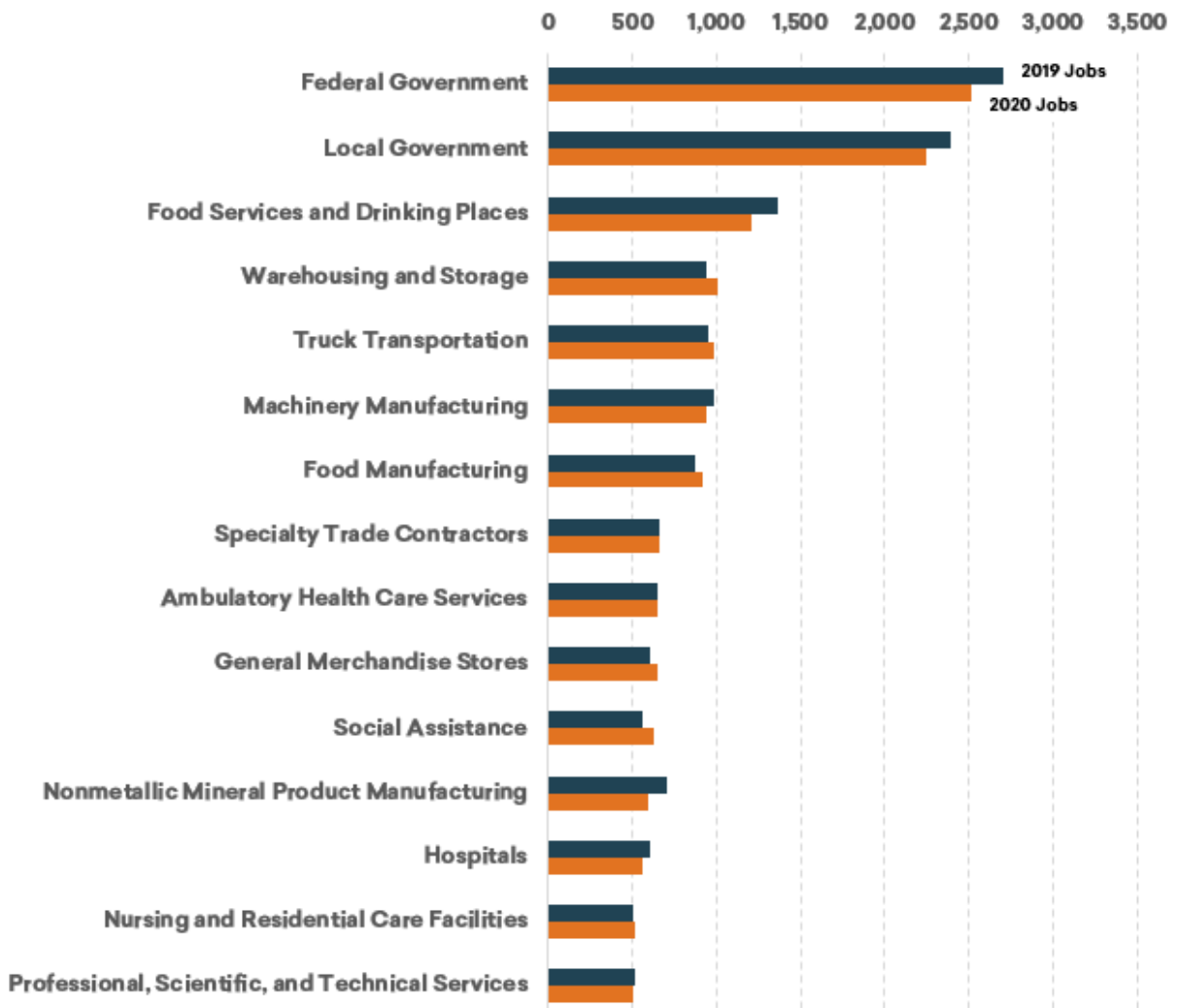
Figure 02: Historical and Projected Jobs in Monroe, 2010 to 2030



Source: Emsi Burning Glass 2021.3.

Figure 03 displays the top industry subsectors in terms of employment in Monroe. Federal Government and Local Government industries were the industries with highest number of jobs in 2019 and 2020.

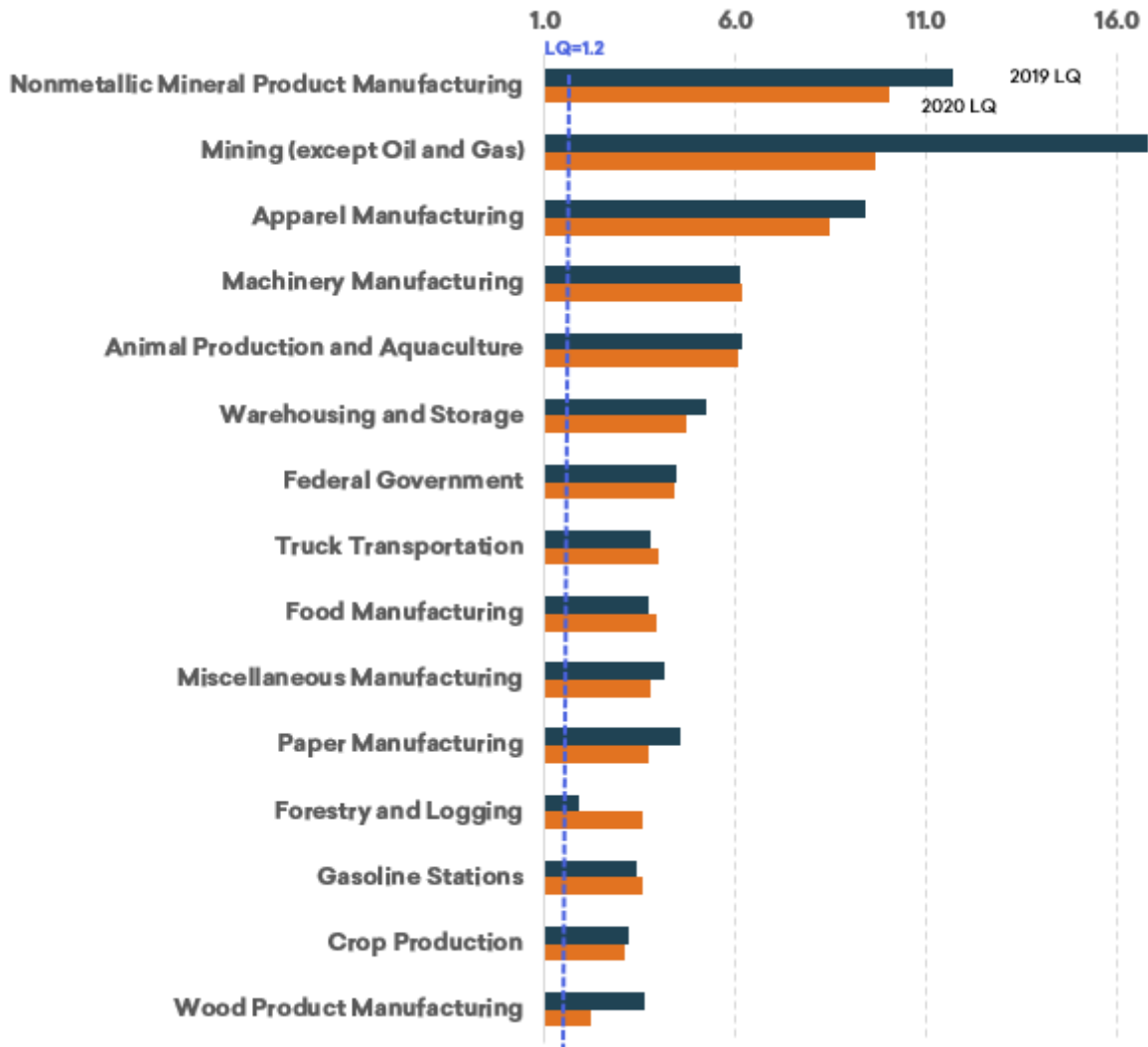
Figure 03: Top Industry Subsectors in Monroe by Jobs



Source: Emsi Burning Glass 2021.3.

Figure 04 shows the top industry subsectors in terms of employment concentrations, referred to as location quotients⁴ (LQs). High LQs (usually anything greater than 1.2) are an indication that the region has a comparative advantage or specialization in certain industry subsectors relative to the rest of the nation or to other regions.

Figure 04: Top Industry Subsectors in Monroe by Employment Concentration (LQ)



Source: Emsi Burning Glass 2021.3.

⁴ Location quotient (LQ) is a way of quantifying how concentrated a particular industry, cluster, occupation, or demographic group is in a region as compared to the nation. It can reveal what makes a particular region unique. (<https://www.economicmodeling.com/2020/02/03/understanding-location-quotient-2/>).

Looking at industries in Figure 03, only 6 industries are within both the top 15 in terms of total jobs and in terms of relatively high LQs. The appearance of these industry subsectors provides an indication of their strength in the region's economy and offers insight into potential employment opportunities for people in the region's labor force that are looking for new professional opportunities. These industry subsectors, ranked by 2020 jobs, are:

- Federal Government
- Warehousing and Storage
- Truck Transportation
- Machinery Manufacturing
- Food Manufacturing
- Nonmetallic Mineral Product Manufacturing

The data in Table 01 shows several of the region's socioeconomic indicators as they compare to Wisconsin and the United States. Household income, reported as a median annual value, includes the income of all individuals in a household, 15 years and over, whether they are related to the householder or not. The median household income of Monroe falls below both Wisconsin and the United States. Per capita income is calculated as the mean income for every person in the area divided by the aggregate income of the total population. In contrast, Monroe shows low unemployment and poverty rates when compared against the nation.

Table 01: Income, Unemployment, and Poverty Characteristics

	AVERAGE MEDIAN HOUSEHOLD INCOME	UNEMPLOYMENT RATE (2020)	AVERAGE PERCAPITA INCOME	AVERAGE POVERTY ALL PEOPLE
Monroe County	\$59,587	3.66%	\$29,242	7.50%
MRRPC Service Region	\$57,495	3.87%	\$29,488	6.90%
Wisconsin State	\$61,747	4.05%	\$33,375	7.20%
United States	\$62,843	6.50%	\$34,103	9.50%

Source: American Community Survey 2019 five-year estimates from the U.S. Census Bureau Data

Figure 05 displays the highest educational attainments in Monroe, the MRRPC Service Region, Wisconsin, and U.S. adults. Educational attainment⁵ data is useful for targeting specific population groups with less than or greater than average education levels. Here, Monroe shows the highest percentage of higher education degree holders when compared against the different regions.

Figure 05: Highest Educational Attainments

	<HS	HS	Some College	Associate's Degree	Bachelor's Degree	>Bachelor's
Monroe County	8.8%	36.2%	22.2%	11.5%	14.7%	6.6%
MRRPC	7.0%	32.7%	20.8%	12.6%	17.6%	9.2%
Wisconsin State	7.6%	30.2%	20.5%	11.1%	20.1%	10.6%
United States	11.8%	26.7%	20.3%	8.6%	20.0%	12.6%

Source: American Community Survey 2019 five-year estimates from the U.S. Census Bureau Data

⁵ Educational Attainment of the Population 25 Years and Over



ECONOMIC IMPACT ANALYSIS

Monroe's labor force promotes economic growth inside the region as well as in the state of Wisconsin through its direct contribution to income generated by work and the ripple effects that expenditures create. This is attained through the industries' interconnection in the regional economy (indirect effects) alongside the impact on household spending (induced effects). COVID-19 disrupted the regional economy in many different ways. One is the reduction of the labor force which will take a great deal of effort to return to pre-pandemic levels. The effects of COVID-19 on the region were measured via three scenarios described in the following section. Each of them will be presented via Type I and Type II Economic Effects. The loss of jobs between 2019-2020 were discounted by the typical rate of death, unemployment, and retirement previous to COVID-19 in order to get a more precise measure of economic effect of COVID on this particular region.

INPUT-OUTPUT MODEL: TYPE I & TYPE II ECONOMIC EFFECTS DESCRIPTION

An Input-Output model is a way of representing the flow of money in an economy, primarily among industries, while also accounting for government, households, and regional imports and exports. An industry is a group of business establishments that share similar end-products (or services) and processes for creating those products/services. Once the flow is represented in the model; we can introduce events that change the flow (such as loss or gain of jobs in one industry) and simulate its effects on each industry in the region, as well as the region as a whole. *The Input-Output model therefore indicates how a change in one part of the economy will ultimately affect other parts based on their economic relationships.*

When we talk about the Input-Output model, we sometimes hear the term “multiplier” used in discussions of economic policy and modeling, usually in the context of job creation or loss. Basically, a multiplier represents how much some aspect of a model will change in response to changes coming from “outside” the model. In other words, *the multipliers capture the changes and will describe the effects of those changes in terms of the original change (final effect = original change times the multiplier).*

In our particular case, we will talk about Type I and Type II multipliers.

Type I multiplier shows the industry-to-industry transactions. It is composed of Initial, Direct and Indirect Effects.

- *Initial Effect:* represents the first shock in the economy; in our case, it's the number of jobs that were lost during the pandemic in 2020, and therefore does not include ripple effects.
- *Direct Effect:* effects caused by the initially changed sectors; also describes the effects on those sectors' immediate supply chain.
- *Indirect Effect:* extends the concept of the direct multipliers to the supply chain's supply chain.

Type II multiplier adds to the Type I by introducing the effects by households (Induced Effect).

- *Induced Effect:* is due to the impact of the new earnings created by the Initial, Direct, and Indirect changes. These earnings enter the economy as employees spend their paychecks within the region on food, clothing, and other goods and services. In other words, this figure represents the income effects on inter-industry trade.

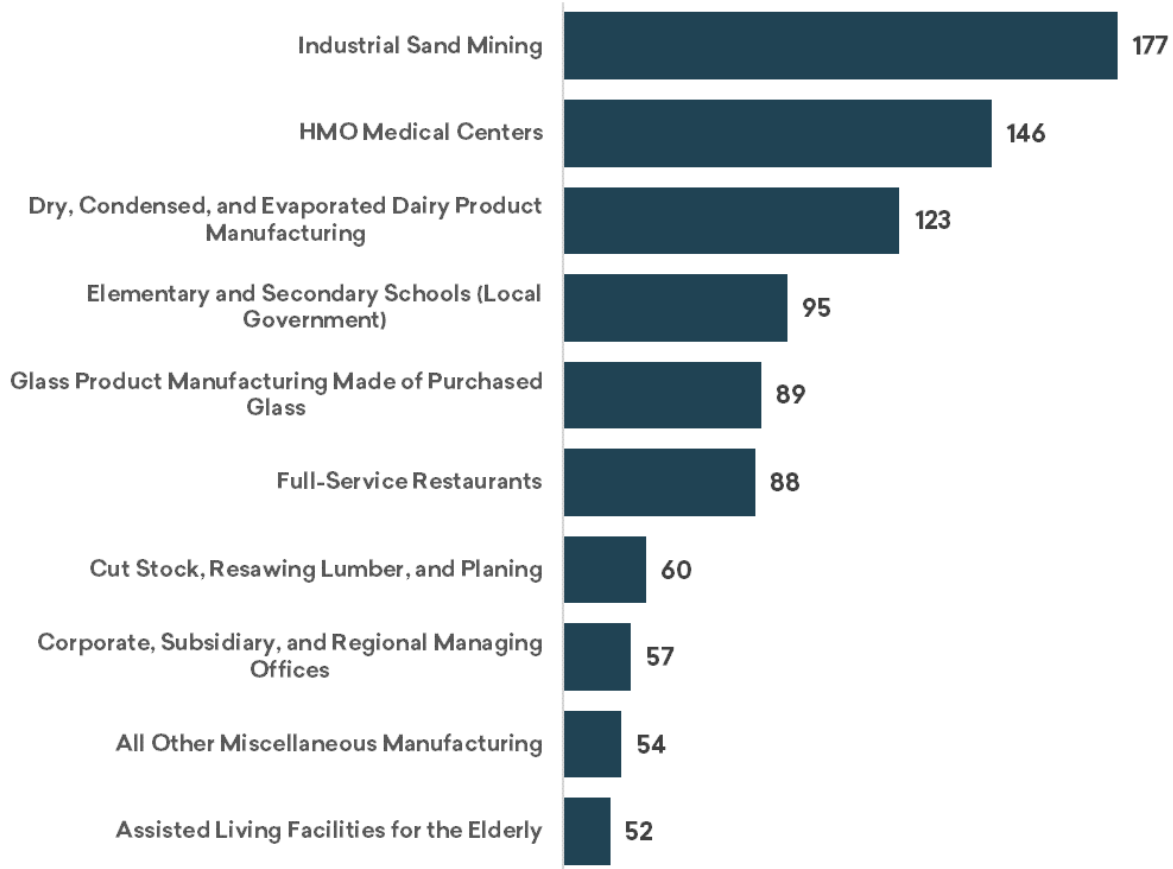
Another description for Type II: business/industry growth or decline that is going to affect the income of individuals and if the individuals spend it or not back in the economy, thus affecting the economy as a whole.

First Scenario:

The first scenario included all industries in which the number of jobs by industries in 2019 were larger than the number of jobs in 2020.

The total number of industries in this scenario were 187. Figure 06 displays the top 10 industries with the highest number of job losses.

Figure 06: Top 10 Industries for All Industries with the Highest Number of Job Losses during 2020



Source: Emsi Burning Glass 2021.3

In this scenario, the total number of lost jobs caused by the pandemic sum up to 1,930 jobs. Job losses shown by Figure 06 represent close to 49% of all jobs lost during 2020.

The total impact on Jobs, Earnings and Taxes on Production & Imports (TPI) by Type I and Type II effects are presented below.

The number of job losses during the pandemic increased to 2,415 for Type I and 2,680 for Type II economic effect. In other words, because of the initial 1,930 lost jobs, there are 485 that are full-time, part-time, and seasonal employee jobs in industries that are part of their supply chain (Type I effect) that were lost. Additionally, there are an additional 265 jobs that were lost because they were no longer supported by the 2,415 jobs already lost in the region (Type II effect).

The top 10 industries in Figure 06 showed a total effect of job loss by 51% compared to their initial effect with a total difference of -319 jobs for Type I and -481 Type II. (Table 02).

**Table 02: Top 10 Industries All Industries Scenario
Change in Jobs**

Industries Name	Initial Effect	Type I	Type II
Industrial Sand Mining	177	230	269
HMO Medical Centers	146	201	236
Dry, Condensed, and Evaporated Dairy Product Manufacturing	123	261	292
Elementary and Secondary Schools (Local Government)	95	99	112
Glass Product Manufacturing Made of Purchased Glass	89	113	126
Full-Service Restaurants	88	91	95
Cut Stock, Resawing Lumber, and Planing	60	81	88
Corporate, Subsidiary, and Regional Managing Offices	57	64	73
All Other Miscellaneous Manufacturing	54	64	72
Assisted Living Facilities for the Elderly	52	57	60
Other Industries	988	1,155	1,258
All Industries	1,930	2,415	2,680

Source: Multi-regional social account matrix model (MR-SAM), 2021.3, years 2019/2020.

Total Effects by Job Loss in 2019-20 due to COVID 19

187 Industries
Negatively Affected

1,930
Initial Job Loss

2,680
Total Loss in Jobs*

\$154.6 million
Earning Loss*

\$19.1 million
Loss on TPI*

* Total Type II Loss

In terms of Earnings loss, the total initial loss of earnings was \$67,000,364 where the total effect of Type I is 2.1 times higher and Type II 2.3 times increase over the initial effect. Table 03 shows an initial loss (Initial Effect) of \$51,293,446 and an economic impact of \$65,522,884 loss on Type I and \$70,105,770 on Type II effects, for the top 10 industries, which represents 45% of the total effects on Type I and Type II.

Table 03: Top 10 Industries All Industries Scenario Loss Earnings

Industries Name	Initial Effect	Type I	Type II
Industrial Sand Mining	\$19,705,513	\$22,613,335	\$24,121,378
Dry, Condensed, and Evaporated Dairy Product Manufacturing	\$7,297,415	\$14,346,051	\$15,555,745
Glass Product Manufacturing Made of Purchased Glass	\$5,379,044	\$6,717,786	\$7,198,805
All Other Miscellaneous Manufacturing	\$4,636,134	\$5,129,151	\$5,452,195
Broom, Brush, and Mop Manufacturing	\$3,814,289	\$4,226,468	\$4,490,256
Cut Stock, Resawing Lumber, and Planing	\$3,091,182	\$4,077,984	\$4,347,594
Paper Bag and Coated and Treated Paper Manufacturing	\$2,959,111	\$3,441,914	\$3,678,053
New Car Dealers	\$1,600,522	\$1,778,982	\$1,871,433
All Other Plastics Product Manufacturing	\$1,541,221	\$1,825,627	\$1,953,647
Site Preparation Contractors	\$1,269,014	\$1,365,586	\$1,436,664
Other Industries	\$15,706,917	\$79,036,785	\$84,506,257
All Industries	\$67,000,364	\$144,559,669	\$154,612,027

Source: Multi-regional social account matrix model (MR-SAM), 2021.3, years 2019/2020.

The loss on Taxes on Production and Imports (TPI) measures the change in local, state, and federal tax revenue through the increased or decreased industry sales, specifically general sales, and property taxes. It's important to note the change in tax revenue corresponds to the ripple effects and cannot be tied to a particular timeframe. Monroe county lost \$19,165,418 on TPI where 25% corresponds to Federal, 36% to State and 39% to Local Government taxes. The top 10 industries represent 53.5% of the total loss on TPI (Table 04).

Table 04: Top 10 Industries All Industries Scenario Loss on Taxes on Production & Imports

Industries Name	Total Loss on Taxes on Production and Imports	Federal	State	Local
Industrial Sand Mining	\$5,109,040	\$972,140	\$1,928,862	\$2,208,039
Dry, Condensed, and Evaporated Dairy Product Manufacturing	\$2,947,751	\$1,024,688	\$977,299	\$945,764
HMO Medical Centers	\$1,045,804	\$360,402	\$347,644	\$337,759
Wireless Telecommunications Carriers (except Satellite)	\$896,642	\$239,626	\$318,341	\$338,675
Glass Product Manufacturing Made of Purchased Glass	\$754,279	\$264,425	\$249,424	\$240,430
New Car Dealers	\$665,909	\$82,607	\$264,300	\$319,002
Farm Supplies Merchant Wholesalers	\$644,998	\$88,072	\$253,644	\$303,282
Commercial Banking	\$568,238	\$237,299	\$176,767	\$154,172
Electric Power Distribution	\$366,061	\$64,055	\$139,839	\$162,167
Hotels (except Casino Hotels) and Motels	\$358,883	\$53,571	\$139,795	\$165,517
Other Industries	\$5,807,813	\$1,302,536	\$2,135,022	\$2,370,255
All Industries	\$19,165,418	\$4,689,421	\$6,930,935	\$7,545,062

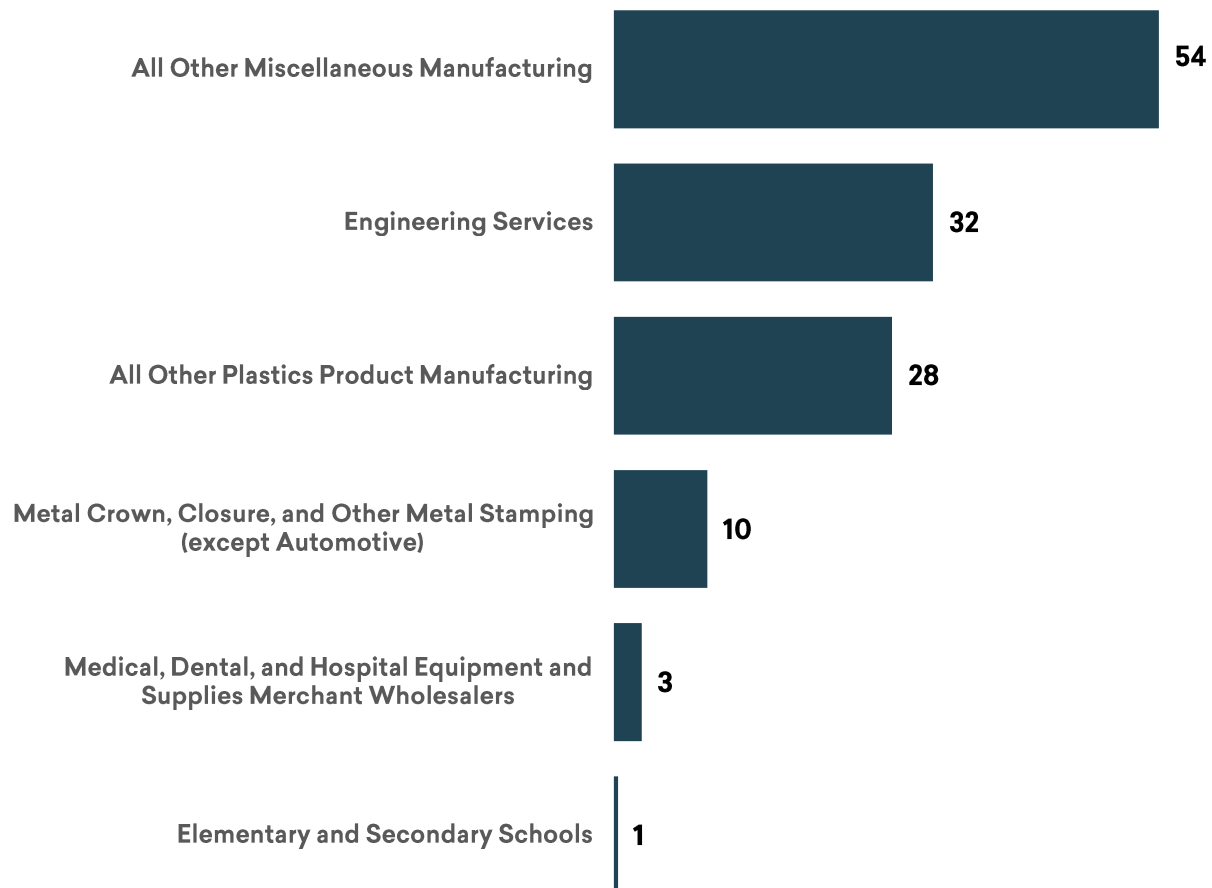
Source: Multi-regional social account matrix model (MR-SAM), 2021.3, years 2019/2020.

Second Scenario:

The second scenario groups industries which performed worse in terms of job loss, unemployment, and job postings, after having been compared at the national level. We selected the industries from two digit NAICS code to six-digit NAICS code.

We called this set of industries the “Most Affected,” relative to national levels. There were six industries in the second scenario. Figure 07 displays the industries with number of job losses.

Figure 07: Most Affected Industries with the Highest Job Losses during 2020



Source: Emsi Burning Glass 2021.3

The number of total jobs lost for the 6 industries adds up to 128 jobs.

The number of job losses during the pandemic increased to 150 for Type I and to 168 Type II economic effects. In other words, because of the 128 losses in jobs, there were 22 full-time, part-time, and seasonal employee lost jobs in industries that are part of their supply chain (Type I effect). Additionally, there were an additional 18 jobs lost because they were no longer supported by 150 jobs already lost in the region (Type II effect).

Total Effects by Job Loss in 2019-20 due to COVID 19



Table 05: Most Affected Industries Scenario
Change in Jobs

Industries Name	Initial Effect	Type I	Type II
All Other Miscellaneous Manufacturing	54	64	72
Engineering Services	32	37	42
All Other Plastics Product Manufacturing	28	34	37
Metal Crown, Closure, and Other Metal Stamping (except Automotive)	10	11	12
Medical, Dental, and Hospital Equipment and Supplies Merchant Wholesalers	3	4	4
Elementary and Secondary Schools	1	1	1
All Industries	128	150	168

Source: Multi-regional social account matrix model (MR-SAM), 2021.3, years 2019/2020.

* Total Type II Loss

In terms of earnings loss, Table 06 shows an initial loss of earnings of \$9,096,732 where the total effect of Type I is 24% higher and Type II 19% increase over the initial effect.

Table 06: Most Affected Industries Scenario Loss Earnings

Industries Name	Initial Effect	Type I	Type II
All Other Miscellaneous Manufacturing	\$4,636,134	\$5,129,151	\$5,452,195
Engineering Services	\$2,208,398	\$2,408,033	\$2,580,986
All Other Plastics Product Manufacturing	\$1,541,221	\$1,825,627	\$1,953,647
Metal Crown, Closure, and Other Metal Stamping (except Automotive)	\$559,936	\$625,443	\$666,979
Medical, Dental, and Hospital Equipment and Supplies Merchant Wholesalers	\$129,144	\$144,925	\$153,638
Elementary and Secondary Schools	\$21,900	\$22,107	\$23,813
All Industries	\$9,096,732	\$10,155,286	\$10,831,258

Source: Multi-regional social account matrix model (MR-SAM), 2021.3, years 2019/2020.

As was mentioned before, the loss on taxes on production and imports (TPI) measured the change in local, state, and federal tax revenues through general sales and property taxes. The county lost \$609,348 on TPI where 27% corresponds to federal government, 35% to state and 38% to local governments (Table 07).

Table 07: Most Affected Industries Scenario Loss on Taxes on Production & Imports

Industries Name	Total Loss on Taxes on Production and Imports	Federal	State	Local
All Other Miscellaneous Manufacturing	\$299,909	\$81,955	\$105,951	\$112,003
All Other Plastics Product Manufacturing	\$158,571	\$48,284	\$54,572	\$55,715
Engineering Services	\$86,051	\$19,268	\$31,641	\$35,141
Metal Crown, Closure, and Other Metal Stamping (except Automotive)	\$40,564	\$11,208	\$14,294	\$15,062
Medical, Dental, and Hospital Equipment and Supplies Merchant Wholesalers	\$23,730	\$4,042	\$9,098	\$10,591
Elementary and Secondary Schools	\$522	\$82	\$202	\$238
All Industries	\$609,348	\$164,839	\$215,759	\$228,751

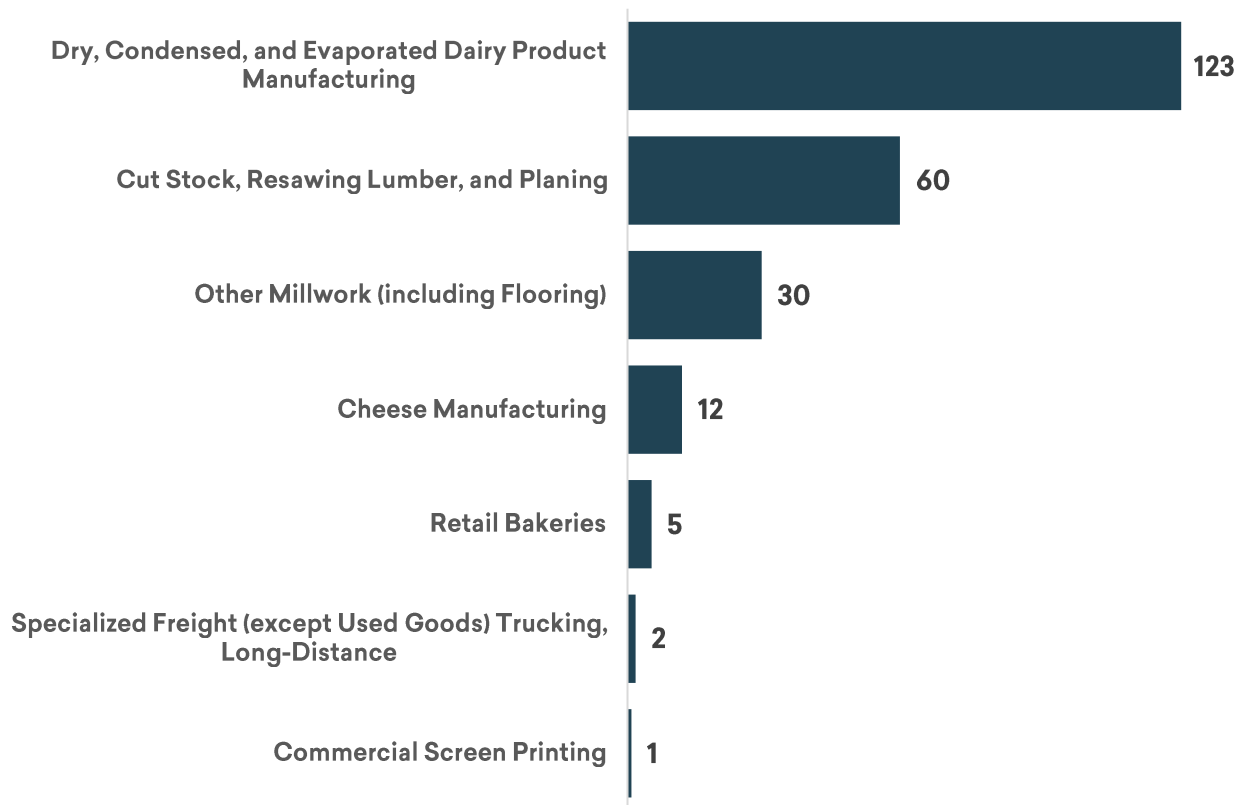
Source: Multi-regional social account matrix model (MR-SAM), 2021.3, years 2019/2020.

Third Scenario:

For our third scenario, we look at industries that are the most relevant to the region. Some of the industries included are Dry, Condensed, and Evaporated Dairy Product Manufacturing, as well as industries where the largest employers in the region are classified.

We called this set of industries the “Most Relevant.” The total number of industries on this scenario were 7. Figure 08 displays the industries with their number of jobs lost.

Figure 08: Most Relevant Industries with Number of Job Loss during 2020



Source: Emsi Burning Glass 2021.3

In our third scenario, the total job loss for the 7 industries amount to 233 jobs during 2020.

The job losses increased to 408 for Type I and for 452 for Type II economic effects. In other words, because of the 233 losses on jobs there were 175 that were full-time, part-time, and seasonal employee jobs in industries that were part of their supply chain (Type I effect) that were lost. Additionally, there were 43 jobs lost because they were no longer supported by the 408 jobs already lost in the region (Type II effect).

The industries in Figure 08 showed a total effect on job loss of 93.5% compared to the initial effect with a total difference of -175 jobs for Type I and -219 Type II. (Table 08).

Total Effects by Job Loss in 2019-20 due to COVID 19



Table 08: Most Relevant Industries Scenario Change in Jobs

Industries Name	Initial Effect	Type I	Type II
Dry, Condensed, and Evaporated Dairy Product Manufacturing	123	261	292
Cut Stock, Resawing Lumber, and Planing	60	81	88
Other Millwork (including Flooring)	30	37	40
Cheese Manufacturing	12	21	23
Retail Bakeries	5	6	6
Specialized Freight (except Used Goods) Trucking, Long-Distance	2	2	3
Commercial Screen Printing	1	1	1
All Industries	233	408	452

Source: Multi-regional social account matrix model (MR-SAM), 2021.3, years 2019/2020.

* Total Type II Loss

In terms of earnings loss, the initial loss was \$12,434,593 where the total effect of Type I was 71% higher and Type II increased 84% over the initial effect (Table 09).

Table 09: Most Relevant Industries Scenario Loss Earnings

Industries Name	Initial Effect	Type I	Type II
Dry, Condensed, and Evaporated Dairy Product Manufacturing	\$7,297,415	\$14,346,051	\$15,555,745
Cut Stock, Resawing Lumber, and Planing	\$3,091,182	\$4,077,984	\$4,347,594
Other Millwork (including Flooring)	\$1,132,874	\$1,492,992	\$1,594,383
Cheese Manufacturing	\$611,696	\$1,055,380	\$1,122,754
Specialized Freight (except Used Goods) Trucking, Long-Distance	\$142,533	\$170,691	\$177,410
Retail Bakeries	\$134,051	\$152,985	\$162,323
Commercial Screen Printing	\$24,841	\$28,774	\$30,883
All Industries	\$12,434,593	\$21,324,857	\$22,991,092

Source: Multi-regional social account matrix model (MR-SAM), 2021.3, years 2019/2020.

The loss on taxes in production and imports (TPI) measured the change in local, state, and federal tax revenue specifically through general sales, and property taxes, showing Monroe lost \$3,544,254 on TPI. 34% corresponded to federal government, 33% to state and 33% to local governments (Table 10).

Table 10: Most Relevant Industries Scenario Loss on Taxes on Production & Imports

Industries Name	Total Loss on Taxes on Production and Imports	Federal	State	Local
Dry, Condensed, and Evaporated Dairy Product Manufacturing	\$2,947,751	\$1,024,688	\$977,299	\$945,764
Cut Stock, Resawing Lumber, and Planing	\$315,861	\$96,795	\$108,522	\$110,544
Cheese Manufacturing	\$148,630	\$37,498	\$53,419	\$57,713
Other Millwork (including Flooring)	\$113,263	\$35,442	\$38,700	\$39,121
Specialized Freight (except Used Goods) Trucking, Long-Distance	\$9,911	\$1,765	\$3,777	\$4,369
Retail Bakeries	\$6,911	\$1,672	\$2,505	\$2,734
Commercial Screen Printing	\$1,927	\$564	\$670	\$693
All Industries	\$3,544,254	\$1,198,424	\$1,184,892	\$1,160,937

Source: Multi-regional social account matrix model (MR-SAM), 2021.3, years 2019/2020.



CONCLUSION:

The results of this study demonstrate the pervasive economic effects COVID-19 had on Monroe county in each of the output scenarios.

One of the most relevant results came from the total effect on TPI by job losses in all industries, where more than 49% is attributed to the 10 industries under the first scenario.

The job projections suggest an increase over time. Finally, the 1,930 initial lost jobs translated to \$154 million in earnings lost and a \$19 million loss on TPI. This loss will affect the region deeply.

The results of this study demonstrate the profound effect of COVID-19 on Monroe county across **multiple scenarios**.

About the Study

Data and assumptions used in the study are based on several sources, including industry and employment data from the U.S. Bureau of Labor Statistics and U.S. Census Bureau, outputs of Emsi Burning Glass' Multi-Regional Social Accounting Matrix model. The study applies a conservative methodology and follows standard practices using only the most recognized indicators of economic impact. For a better description of the data and approach used in the study, please review the Methodology document.